WHAT IS CLAIMED IS:

1. A viewing screen for increasing the divergence of information-coded-light incident on its input surface, exiting its output surface into a viewing zone, having high ambient light rejection and low retroreflectance comprising:

a diffuser, comprised of a material substantially devoid of regular geometric objects (i) distributed therein having an average size that is greater than a wavelength of said information-coded-light and (ii) having geometrical concavity open to at least a portion of said viewing zone,

wherein said diffuser exhibits a polarization-preserving discrimination ratio of at least 2:1 throughout said viewing zone, said screen further comprising (i) at least one absorbing means and (ii) a substantially non-diffusing antireflection means on its output surface

2. The viewing screen of claim 1, wherein said at least one ambient light absorbing means is optically coupled to said diffuser.

3. The viewing screen of claim 2, wherein the ambient-light absorbing means comprises at least one of a polarizer, a wavelength-selective absorber, a neutral density absorber, and a time-sequenced absorbing shutter.

4. The viewing screens of claim 2, wherein the ambient-light absorbing means comprises multiple polarizer layers of the linear/circular polarization type, wherein each polarizer layer has its polarization axis aligned to the other.

5. The viewing screen of claim 2, wherein the ambient-light absorbing means comprises a thin film deposition directly on said diffuser.

6. The viewing screen of claim 1, wherein said diffuser is a surface diffuser with an absorptive means in contact with its topographic features.

7. The viewing screen of claim 6, wherein said absorptive means is a deposition/coating on the top of the topographic features, a dye or impregnation within a

depth starting at the topographic features, contained within the bulk of said diffuser, or some combination thereof.

8. The viewing screen of claim 1, wherein said diffuser is a volume diffuser.

9. The viewing screen of claim 1, in combination with at least one of a projection and a direct-view system.

10. The viewing screen of claim 9, wherein the system comprises a polarization-based 3D imaging application.

11. The viewing screen of claim 1, further comprising a specular reflector.

12. The viewing screen of claim 1, further comprising a fresnel-reflection reduction means.

13. The viewing screen of claim 12, wherein the fresnel-reflection reduction means comprises at least one of index-matching fluid, index-matching gel and index-matching adhesive.

14. The viewing screen of claim 12, wherein the fresnel-reflection reduction means comprises a Motheye or an equivalent nanostructure.

15. The viewing screen of claim 1, wherein the viewing screen has at least one of the following configurations: A/D/P/A, A/P/D/P, P/D/P/A, A/P/D/P/A, wherein A corresponds to an antireflective coating, D corresponds to said diffuser, and P corresponds to said ambient-light absorbing means.

16. The viewing screen of claim 15, wherein an interface between P/D layers and/or D/P layers comprises a fresnel reflection reduction means.

17. The viewing screen of claim 16, wherein the interface between the D/P layers comprises an index-matching adhesive.

18. An imaging system comprising the viewing screen of claim 1 in combination with a source of said information coded light, wherein the speckle contrast is less than 6.

19. A low-scatter polarization-preserving multilayer viewing screen for increasing the divergence of information coded light, comprising :

a substrate D for increasing the divergence of information-coded-light, while preserving its polarization sense A, as it passes therethrough with a discrimination of at least 2:1 within a viewing zone;

an absorbing polarizer on one or both sides of said D and aligned to pass polarization state A;

a polarization-state phase-shift layer for modifying the polarization state of forward-scatter and/or back-scatter that total internally reflects within said viewing screen into the state opposite of A, said phase-shift layer being located at any position between the polarizer and an outermost surface of the viewing screen through which said information-coded light passes.

20. The viewing screen of claim 19, further comprising fresnel-reflection reduction means in contact with the surface of one or more layers through which said information-coded light passes.

21. The viewing screen of claim 19, further comprising at least an anti-reflective coating.

22. The viewing screen of claim 19, wherein the antireflective coating comprises a thin film deposition or nanostructure applied directly to the ambient-light absorbing means or on a transparent substrate that is thereafter applied to the ambient-light absorbing means.

23. The viewing screen of claim 19, wherein said diffuser is a volume diffuser.

24. The viewing screen of claim 19, in combination with at least one of a projection and a direct-view system.

25. The viewing screen of claim 24, wherein the system comprises a polarization-based 3D imaging application.

26. An imaging system comprising the viewing screen of claim 19 in combination with a source of said information coded light, wherein the speckle contrast is less than 6.